

**ABSTRACT**

A system for determining an estimate of a multi-dimensional symbol, and one or more residuals between the symbol and the estimate. The one or more of the  
5 residuals may be weighted by the reliability metric for the multi-dimensional symbol. The residuals, weighted or unweighted, may then be used to update a derotation phase or phase offset estimate. The individual symbols in the multi-dimensional symbol may then be derotated responsive to the derotation phase or phase offset estimate.